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ROCKS and MINERALS

Official Journal of the Rocks and Minerals Association

A Magazine for Mineralogists, Geologists and Collectors

MAY, 1946

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Vol. 21, No. 5 Whole No. 178

FINE MINERALS FROM AN OLD COLLECTION

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1946

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The official Journal of the Rocks and Minerals Association

CHIPS FROM THE QUARRY

EFFECT OF THE ATOMIC AGE UPON MINERAL COLLECTING

Nobody seems to have expressed any great concern yet about the probable effect of the atomic age upon mineral collecting. Some may have noted that uranium mineral specimens are getting scarce and new material is getting high in price. We are told by the press that Canada has nationalized uranium mines, that the U.S. has also done so in effect as regards public domain deposits and will probably exercise some control over others under the pending bill. Negotiations are said to have been made for foreign supplies.

It is very likely that specimen material from Czechoslovakia and the Congo never entered this country in any quantity and in the merely recent years of exploitation but a limited amount of the rich Canadian pitchblende has been available to collectors. Based upon individual efforts there is unlikely to be any further supply for dealers and private collectors from these famous sources. The carnotite deposits of Colorado and Utah will presumably be operated under Government ownership or control and possibly also the richer pegmatites of various localities on account of the pitchblende content. Much of this material from pegmatites is disseminated and second grade in comparison with vein pitchblende. We may expect regulation of transactions in radioactive minerals, especially in any quantity or where import or export is concerned. The status of even private ownership of existing specimens may remain in doubt until the whole subject is clarified.

We must recall that the Government can give nothing away and can usually only sell public property according to special act of Congress.

There are well over a hundred known minerals of uranium and thorium. Of these only a few are indispensable for the average collector, including; uraninite (pitchblende), gummite, carnotite, autunite (for fluorescence), monazite, monazite sand, thorianite and some of the minerals of the samarskite and euxenite type. Fortunately, none of these minerals usually occurs finely crystallized and only gummite and carnotite show attractive color. All can likely be found in good or fair quality within the U.S.

Simultaneously with the scarcity or absence of collection material upon the market, there will come a great demand to prospect and locate new deposits of uranium and thorium minerals. This activity may be exclusively managed by some Government bureau, but if not there will be a great need by collectors, prospectors and museums for authentic specimen material to study and test. How will the scarcity and the need be coordinated?

Mineral collectors as a class will certainly be willing to make any sacrifice necessary for the public welfare and security. It remains to be seen, however, if permanent loss of access to new supplies of uranium and thorium minerals is essential. What seems more reasonable to hope for, is the adoption of regulations to ameliorate the situation, such as; setting aside annually a small amount of typical U.S. and foreign material for sale to dealers and others, permission to visit and study the associated geological formations, permitting transactions in reasonable amounts of radioactive minerals for educational and cultural purposes as distinguished from atomic energy purposes.

Let us hope that some safe and satisfactory formula can be worked out before it is too late.

A Collector

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STANSBURY ISLAND, UTAH

By RONALD L. IVES
Vice-President, R. & M. A.

ABSTRACT

Geology, physiography, and history of Stansbury Island, in Great Salt Lake, Utah, are here outlined, with special emphasis on features due to changes in the level of Pleistocene Lake Bonneville.

INTRODUCTION

Although discovered by fur trappers some time prior to 1850, Stansbury Island, in Great Salt Lake, Utah, was not described in geological literature until the publication of Gilbert's reports in 1890[1]. Very little work has been done on the area since that time. Within the last four years, the writer has had a number of opportunties to visit the area, and to fly over it; securing more reconnaissance data, and photographs which were not obtainable at the time of Gilbert's study. A general summary of Gilbert's findings, as augmented by this recently-obtained data, is here presented.

LOCATION AND ACCESSIBILITY

Stansbury Island is located in northeastern Tooele County, Utah, almost due north of the Ellerbeck Station on the Western Pacific Railroad. The island is connected to the mainland by a causeway across the Salt Flats, so that access is possible from U. S. Highway 40-50 by ordinary automobile (carefully driven). A fair desert road extends six miles north on the west side of the island, and three miles up the east side. From the ends of these roads to the northern tip of the island, access is possible by jeep, but not by ordinary civilian vehicles. Do not attempt short cuts across the salt flats, which will support a man afoot but not a wheeled vehicle.

Relation of Stansbury Island to other features of the Utah Desert Area is shown in Fig. 1. General appearance of the island as seen from the mainland north of Ellerbeck comprises Fig. 2. Nearest large supply point to Stansbury Island is Grantsville, although good accommodations can be secured, in season, at several nearby tourist camps.

AREAL GEOLOGY

The major part of Stansbury Island is composed of dolomitic limestone, of early paleozoic age, containing poorly preserved trilobites, corals, and sponges (?). On the west side is a small "cut in" of pegmatitic material, of possible early tertiary age. "Armoring" a number of the ancient shorelines are extensive deposits of tufa, of algal origin at high levels, and chemically precipitated below the Stansbury level. At low levels are typical pediments, composed of materials eroded at higher levels by the violent rains of the desert area. From a few feet above the present level of Great Salt Lake to an unknown depth below it are deposits of shore sediments, cemented in place by chemically—deposited tufas. These are plainly visible in Fig. 3, where they appear as brilliant white areas.

MINERALS AND FOSSILS

Although Stansbury Island is chiefly of physiographic interest, a number of minerals and fossils are present there, and a collector is unlikely to return from the area empty-handed.

In the shore zone, saline clay and salt can be collected in almost unlimited quantities. Salt is locally evaporated for sale. On the east side of the island, there are

(1) Gilbert, G. K. *Lake Bonneville* U. S. Geol. Survey Mon. 1, Washington, 1890.

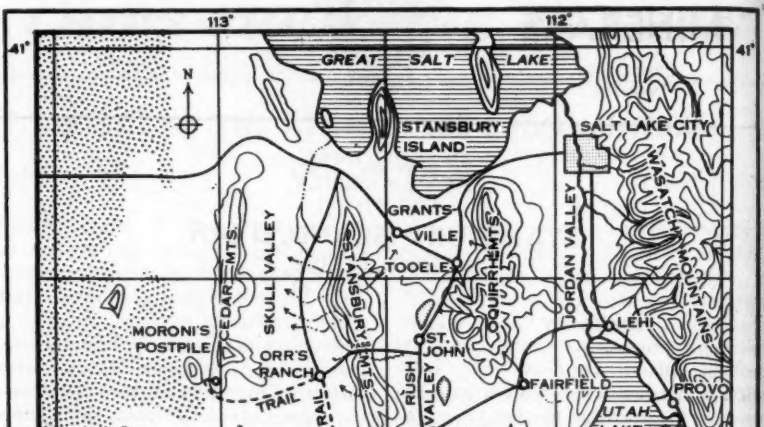


Fig. 1 Outline map of a small part of the Utah Desert Area, showing location of Stansbury Island. Lowest contour is about 5,000 feet; contour interval is about 1,000 feet. Major salt flat areas are stippled.

Fig. 2 Stansbury Island from the South. Aspect here visible is composed largely of early Paleozoic limestones, partially metamorphosed. Two shorelines, the Provo and Stansbury, are visible on the mountain slopes. The salt flats in the foreground are intermittently submerged. The diffuse line at the far edge of the salt flats is a small mirage.

dunes of crystalline salt, constructed when saturated spray evaporates.

On the higher shorelines, algal tufas, sometimes called "fresh water coral" are plentiful. Occasional specimens containing very perfect small gastropod shells are found. These give ample evidence that the lake waters were not always as saline as at present. Base-exchange tufa (chemical deposits) are still forming in the shallower shore areas, and sometimes take a "lily pad" form, very much like some hot-spring sinters. Where fresh water wells up from below, as occurs in a number of places on the east side of the island, the local deposition is inhibited, and an embayment surrounds the "bottle spring"[2]. Two such spring bays occur close together at Fitkin's Cove, at the tip of the Island (Fig. 4).

In the limestone areas of the island (Fig. 5, A) can be found limestone in all phases of metamorphism except good marble. Some dolomite is present, although it is not typical. In these areas also are some poorly-preserved trilobites, corals, and sponges(?).

The pegmatite area on the west side of the island deserves further study, as it appears to be slightly atypical. Here are found yellow feldspar (probably orthoclase), with a few pink and green crystals of undetermined classification. These fade in a few weeks on exposure to sunlight. Small masses of quartz are present here, as is biotite float. Several small imperfect black tourmalines were found here in a black sand placer which also contained magnetite and native sulphur (from extinct hot springs?). Beryl was reported from this area, but not found. Several large gold nuggets were reported found here in the late 1890s. No gold was disclosed by careful panning of several washes.

Several small pieces of petrified wood were found as float on the west side of the island. As there are no source beds for this material in their near vicinity, it seems probable that they were brought here by Indians, who used petrified wood as arrowhead and knife material.

(2) Ives, R. L. *Bottle Springs,* Journal of Geology, in press.

Fig. 3 Aerial strip map (composite) of Stansbury Island from 30,000 feet (terrain clearance). White areas we tufa deposits, of chemical origin, which are still forming. Many of these are slightly below the present water surface. Photographic work by Capt. R. R. Avery, CWS. North is at top of view, length of island is approximately ten miles.

EARLY HISTORY

The early history of Stansbury Island is similar to that of most of Utah, and has been described elsewhere, so far as present evidence (admittedly incomplete) permits[3]. The present form of the island is largely due to the same faulting that upraised the Stansbury Mountains, probably in early tertiary time. Since the main uplift, the northern end of the range,

(3) Ives, R. L. *The Little Cottonwood Area,* Utah, Rocks and Minerals, Vol. 21, 1946, 67-74.

Fig. 4 Fitkin's Cove, at the north end of Stansbury Island. Here, fresh water wells up under the salt water of the lake, diluting the lake water, and inhibiting formation of chemical tufa. This cove can be seen just east of the tip of the island in Fig. 3. Note "storm line" on shore just above the tufa beach. Land on horizon is the mainland, near Garfield, Utah.

which now forms the island, was displaced eastward, relative to the main mass, about six miles, along a fault trending S 80° E. The north end of the Cedar Mountains was similarly displaced to form the Lakeside Range.

After the initial uplift, the area was continually eroded, apparently under arid conditions, to produce the characteristic Basin-and-Range structures now present. Some rejuvenation of the area has occurred relatively recently, but its magnitude is not great.

LATER HISTORY

At some time in the Pleistocene, when major topographic features were much the same as at present, the climate of the world changed, producing ice fields in the high mountains and the northern regions, and large temporary lakes in many areas now desert. Each advance and recession of the ice during this time was

accompanied by a change in the water supply to these lakes, so that some of them, having no outlet, fluctuated violently in level (as did Lake Lahontan, in Nevada); while others, having an outflow, retained their levels during all but the most violent changes in water supply.

During this time, the present Stansbury Island occupied the basin of a large Pleistocene Lake, called Lake Bonneville. Many early fluctuations in water level undoubtedly occurred in this area, but the record is so obscured by later changes that all that can be stated with certainly is there there were several early lake stages.

In the later part of the Pleistocene, the lake rose to about 5,100 feet above sea level (1,000 feet deep), surrounding the Stansbury Ridge, and making it a small island. This was the Escalante Lake stage (Fig. 5, B). After a long period of minor fluctuations in level (there is no certainly that the Escalante Lake had an outlet), the waters of the Escalante Lake evaporated, and the basin dried up.

Much later, the basin filled again, until it overflowed at Red Rock Pass, near Oxford, Idaho. This was the Bonneville Stage, which produced the Bonneville shoreline, prominent throughout the present Bonneville Basin. Area of Stansbury Island during this time is shown in Fig. 5, C. After a long life, Lake Bonneville dried up, either wholly or partially, due to a general drying up of the area, very probably accompanied by a recession of glacial ice in North America.

Three more times the lake rose, producing the Provo, Stansbury, and Dugway shorelines. Present evidence indicates that the Provo level was determined by an outflow at Red Rock Pass, but that the two later lakes were "blind" as is the present Great Salt Lake.

Today, the level of Great Salt Lake fluctuates annually, due to normal run-off — evaporation relations; and on several rather indefinite longer cycles, so that Stansbury Island is a true island during long wet phases, and a peninsula, joined to the mainland as at present, by a series of salt flats, during dry phases.

Dugway Proving Ground
Tooele, Utah.
March 10, 1946.

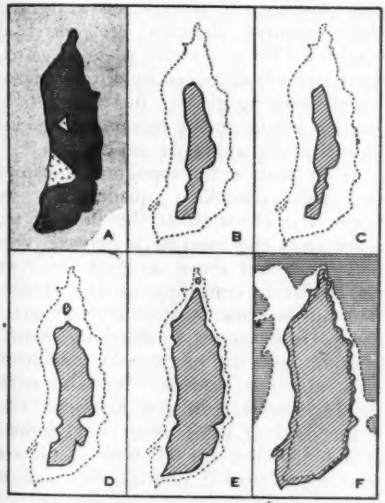


Fig. 5 Geology and later physiographic history of Stansbury Island, Great Salt Lake Utah.

A—Geology of Stansbury Island, with lake level not shown. Stippled areas are lake deposits, mainly tufa: lined area is limestone, of early Paleozoic age: checked areas are pegmatite.

B—Area of island during Escalante Lake stage. Lined area is island; dotted outline shows present extent.

C—Stansbury Island during the Bonneville stage. Lined area is island; dotted outline shows present extent.

D—Land area of Stansbury Island during Provo lake stage. Pattern same as B and C above.

E—Stansbury Island during Stansbury Lake stage. Patterns same as above.

F—Present extent of Stansbury Island. Diagonal lining shows present island. Inner dotted line shows extent during the Dugway lake stage, estimated as about 4,000 years ago. White areas are shallow water, in which tufa and clay are now depositing. Parts of this area are dry land during dry seasons. Wavy lined area is deep water.

A VISIT TO THE TERMINAL MORAINE IN NEW YORK CITY

By CECIL H. KINDLE
College of the City of New York

Much of the terminal moraine is built over and obscured in its course across three counties in New York City; Richmond (Staten Island), Kings (Brooklyn) and Queens. It is still worthy of a visit in eastern Queens where it is to some extent unspoiled. A portion lying north of the Grand Central Parkway is preserved in Cunningham Park while an area to the south has been but little encroached upon by housing developments. The southern border is followed by Hillside Avenue from Jamaica to Hollis. In Hollis a comparatively recent road cut for Francis Lewis Boulevard running north from Hillside Avenue leaves a great scar on the landscape readily seen from the Long Island Railroad. Here rainwash has removed much of the finer material leaving a great collection and variety of pebbles, cobbles and boulders.

Much of this material was beautifully rounded by some pre-glacial stream. The most common pebbles and cobbles are of quartzite. Also to be found are pegmatites, basalt, diorite, arkose sandstone, shale, serpentine, schist, etc. A good collection of pebbles of these different kinds of rocks may be made here. Efforts at landscaping will reduce the material available in a year or two.

The area is easily reached by taking the Independent Subway train "E" to the end of the line at 169th St. and Hillside Ave. From here any of a number of buses may be taken to 205th St. and Hillside Ave., from which spot the cut in the moraine is close at hand.

After examining the many kinds of rock in the cut we will climb to the summit of the hill to the east. From here two contrasting types of topography are seen to be separated by Hillside Avenue below us. To the south a flat expanse closely dotted with houses stretches for miles. To the north a hundred yards away is a deep depression with a shallow pond. Beyond that is the Grand Central Parkway and beyond the Parkway are more depressions both with and without water and among these are scattered elevations. This is the "knob and kettle" topography characteristic of glacial moraines. If our visit is in the winter we will want to bring some of the well rounded quartzite cobbles from the road cut. It is a pleasure to hear the ice sing as they glide over the frozen kettle ponds. Now we see how the sport of curling might well have been developed!

The really striking feature of our visit is the abrupt and steep termination of the moraine along the line followed by Hillside Avenue. It is expected in general that morainal deposits are succeeded southward by an outwash plain of gravel, sand and silt deposited by streams draining the melting glacier. But such a steep, straight border to the moraine is unusual and requires a special explanation.

If we look at the topographic map of the area (Brooklyn quadrangle) we notice the elevation at the base of the slope from the moraine is between sixty and eighty feet above sea-level. Now we recall that in travelling up the Hudson by train we always stop at Harmon to change from electric to steam locomotive. Harmon is at the junction of the Croton river and the Hudson. We also recall the high gravel banks at Harmon. This is the delta of the Croton river; formed at a time when the Hudson (sea-level) was higher than it now is. We look at the topographic map of this area and see that the top of this old delta which reaches halfway across the Hudson is sixty feet above sea-level. Sixty feet! Ah ha, the same elevation as the base of the slope at Hillside Avenue! So, at the same time the Croton delta was forming the sea reached in over southern Long Island to erode the border of the terminal moraine. And now we must conclude that the broad flat expanse of southern Long Island is more correctly termed an uplifted sea floor than an outwash plain.

Now that we have settled something we relax. We see as we glance back into the ice age that this region was weighed

down by the ice sheet so that at one time it was sixty feet lower than at present. The melting of the ice sheet released the pressure and the region has responded by rising till today it is sixty feet higher than at the time the ice was here. How satisfying! How complete an explanation!

Someone mentions pot-holes worn in the solid rock by streams no longer flowing. Such pot-holes are not uncommon on the east side of several ridges in upper Manhattan and the Bronx. The streams which cut them plunged down crevasses from the surface of the melting glacier. Since the crevasses formed after the ice passed over the crest of ridges these pot-holes are found on the leeward or east side of the ridges. Most of the pot-holes are more than sixty feet above sea-level and fit in with the theory we reached above.

Some of us, however, recall seeing pot-holes in the Inwood section of Manhattan about twenty feet above sea-level. One very large one in Inwood Park eroded in hornblende schist extends below sea-level. We can not believe it was cut by a stream sixty feet below sea-level.

Can this pot-hole have been cut at an early stage in the glacial advance before the glacier had been present a sufficient length of time to cause the region to sink? Or if the pot-hole were cut at a late stage in glaciation does it mean that this region did not sink the sixty feet below its present level till after the ice had left the region? The facts as we have seen them support either of these explanations. That land was at least as high as at present during glaciation or some stage thereof is indicated by the pot-holes. The simplest explanation for the post-glacial sinking of the land is in the melting of the ice itself and the return to the sea of an enormous quantity of water which had been perched on the land. Before someone else brings up a fact which does not fit in the picture we had better bring this little jaunt to a close.

Major Gold Strike in South Africa

Borings to a depth of 3,922 ft., about five miles east of Odgengallrust, Orange Free State, South Africa, have revealed the richest gold strike in nearly a century. An 18.4 inch vein in a basal reef assays at 62.4 ounces to the ton, or a value at U.S. gold prices of $2,184 per ton. Indications are that a major reef has been discovered. The location is on the mining property of the Western Holdings and Blinkport companies. However, only strongly financed mining companies can carry out shaft boring operations at this great depth, so there is no use for readers of *Rocks and Minerals* starting a new gold rush to South Africa. However, there still are some parts of California where a twelve or fifteen hour day panning for gold in small streams will enable from two to three dollars per day to be made. During the business slump in early Roosevelt administration days, one couple made about this amount panning the black sands on the beach at San Francisco.

FLUORESCENCE ON IRON-STONE SHALES NEAR POTTSTOWN, PENN.

By C. A. THOMAS

A brilliant "tail-light" red calcium coating on iron-stone shale has been found with a portable Mineralight near Pottstown, Penn.

The writer claims this as his first worthwhile discovery with this lamp. The material is not always visible in daylight on the very black shale but comes to brilliant life under the cold-quartz lamp.

Some weathered coatings are revealed in a light tan to white fluorescence which prove to be brilliantly phosphorescent in golden and lemon green. A new unsolarized filter is best for this display.

Pottstown is a beehive of industry between Philadelphia and Reading on the Schuylkill River. Potts' iron foundries, now abandoned, are just outside the town. The original Potts' mansion is preserved for posterity.

MINERALS OF THE H.T. CAMPBELL QUARRY OF TEXAS, MARYLAND

By HAROLD LEVEY

3537 Belvedere Avenue, Baltimore 15, Md.

One of the best mineral localities in the state is the still active quarry of H. T. Campbell at Texas in Baltimore County, Maryland. It is located about one-quarter mile west of the York turnpike and is easily accessible by paved roads. The opening is in Cockeysville marble, which has gained fame for its use in the Capitol in Washington and the Washington monument; not to mention the many buildings in other cities. However, most of this marble came from the Beaver Dam quarries, just north of Texas. At the Campbell quarry, the limestone ranges from a coarsely crystalline calcite rock, called "alum-stone", to a fine grained dense dolomitic marble.

GEOLOGY

The limestone of this area has been correlated with the Shenandoah limestone and therefore its age is thought to be Cambro-Ordovician. Its age cannot be accurately determined because no fossil forms have been found, these were probably destroyed by strong metamorphic action. The limestone overlies the Setters formation and is overlain by the Wissahickon schist.

MINERALOGY

Some thirty minerals have been found in this immense opening. Most of these occur in the white coarsely crystalline marble. Following is a list of minerals to be found at this locality:

TREMOLITE: White, in radiated crystals and grey, in bladed masses.

PYRITE: Usually found in pyritohedrons, also in octahedrons and masses.

PHLOGOPITE: Occurs in sharp six-sided crystals about one inch across. This brown mica, occurs also in masses, and the dolomitic marble is banded by phlogopite veins.

CALCITE: In "dog-tooth" crystals and also in rhombohedrons.

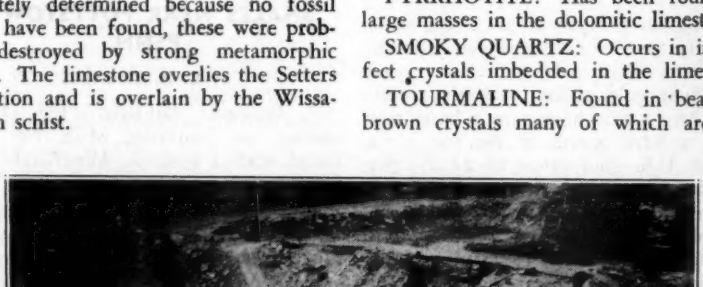
DOLOMITE: In pale pink crystals.

FUCHSITE: In small plates and sometimes in crystals.

PYRRHOTITE: Has been found in large masses in the dolomitic limestone.

SMOKY QUARTZ: Occurs in imperfect crystals imbedded in the limestone.

TOURMALINE: Found in beautiful brown crystals many of which are ter-



A portion of the H. T. Campbell Quarry of Texas, Maryland

minated.

WERNERITE: Excellent crystals, about the size of a finger, have been found. The colors range from white to pink to grey. Some portions of the grey crystals fluoresce a bright yellow, similiar to that found in Ontario.

SPHENE: Found in dark brown crystals.

LIMONITE: Probably a pseudomorph after pyrite

MOUNTAIN LEATHER: Found in huge sheeets between the limestone and the carbonate sands.

BARITE: In white crystals and masses.

Also found in this quarry are wollastonite, purple fluorite in crystals and stains, dendritic wad, galena, sphalerite, pyroxene altered to serpentine, quartz crystals, rutile, chlorite, talc, green diopside, molybdenite, margarite, and fetid feldspar.

BIBLIOGRAPHY

Ostrander, C. W. and Price, W. E., Jr.—*Minerals of Maryland*—The Natural History Society of Md., 1940.

Mathews, E. B. and Grasty, J. S.—*The Limestones of Maryland*—Maryland Geological Survey 1910.

Weinschenkite from Bavaria

Weinschenkite is a hydrous phosphate of yttrium and erbium. It was first found at the Nitzelbuch mine in Auerbach, in the Franconian Alps of northern Bavaria, Germany, where it occurred as white globular masses, also radiated needles (closely resembling wavellite) as a coating on manganiferous limonite. Its name was given in 1922 by Dr. H. Laubmann after the late petrographer of Munich, Germany, Professor Ernest Weinschenk.

Nitzelbuch and other mines in the Ambeg-Auerbach district are iron mines whose ore is mainly brown hematite with a little siderite. A number of interesting minerals occur in the mines among which are apatite (nodular and stalactitic); garnet (grossularite), pale yellow and white crystals; pseudowavellite (white to yellow needles); spodumene; vivianite (fine druses); and wavellite.

In 1941, a second locality for weinschenkite was found — this new locality being in western Virginia. The locality is the Kelly Bank mine at Vesuvius in northeastern Rockbridge County. The mine is 1 mile east of the village of Vesuvius and was orginally worked for limonite but was re-opened briefly in 1940 and worked for manganiferous iron ore. Here weinschenkite occurs as small radiated white to light brown aggregates on a black manganiferous limonite.[1]

1 Weinschenkite, yttrium phosphate dihydrate from Virginia. By Charles Milton, K. J. Murata, and M. M. Knechtel. *Am.Min.*, vol. 29, Nos. 3 and 4, March-April, 1944, pp. 92-107.

An Asbestos Mine in South Africa

One of the important asbestos mines in South Africa is the New Amianthus mine located on the eastern slopes of the Drakensberg Mts., 3 miles north of Kaapsche Hoop, in the Barberton District (28 miles northwest of Barberton). Kaapsche Hoop is a little village in eastern Transvaal.

Although the working is called an amianthus mine, the asbestos is chrysotile which occurs in a large number of parallel cross-fiber seams in greenish serpentine.

A number of interesting minerals, besides chrysotile and serpentine, are found in the mine, among them being:

Barbertonite: A hydrated carbonate-hydroxide of magnesium and chromium, lilac to rose pink in color and intimately associated with stichtite, chromite, and antigorite (thin lamellar greenish serpentine) as veinlets and small masses in serpentine.

Chromite: Lustrous black masses.

Stichtite: A hydrated carbonate hydroxide of magnesium and chromium, lilac to rose pink in color, found as blebs and small veinlets closely associated with chromite, barbertonite, and antigorite in serpentine.

A STUDY OF THE MOISTURE CONTENT AND THE CRYSTAL STRUCTURE OF SEVERAL SPECIMENS OF OPAL

By SELMA MILLER (1)

Opals are essentially partially dehydrated silicic acid. The most common form of dehydrated silicic acid is silicon dioxide, the mineral quartz. However, in many cases the silicic acid, when precipitated from solution, does not lose all of its water and may retain varying percentages of it depending upon the conditions under which it precipitates.

Opal is formed at low temperatures but that certainly is not the only criterion since many quartz crystals are also formed at low temperatures by crystallization from solution. The different forms of silica occurring in geodes must have been deposited from solutions at about room temperatures since many geode deposits are at considerable distances from heated rock masses.

Silica is one of the substances which will replace other materials. Petrified wood is quite common in its occurrence and represents the replacement of woody tissue by silicic acid. In some cases opal is formed as in the opal deposits of Humbolt County, Nevada. The petrified wood of Arizona and that of Yellowstone National Park however give the X-ray pattern of quartz.

When solutions containing silicic acid fill cracks and fissures in the rocks reactions may take place with mineral constituents of the wall rocks which cause precipitation of silicic acid. It should be kept in mind that when silicic acid precipitates there is no definite amount of water present. The material so precipitated is usually called a "gel" because of this character. Silicic acid can be kept in solutions which are either quite acid or quite alkaline since silica is one of the amphoteric substances. Chemical reactions with other minerals will reduce either the acidity or the alkalinity, as the case may be, until the silica "gel" precipitates. Another cause of precipitation is that of evaporation of the solvent. This seems to be the mode of origin of the Mexican fire opals of Esperanza, Queretaro, and Zimapan.

It is usually considered that the color of common opals is due to the metallic oxides occluded by the silica "gel" when it precipitates while the color of the precious opal is due to optical effects.

Some work has been done on the crystal structure of opals (2). It is stated that some hyalites, fire opal, wood opal and opaline cherts give the characteristic X-ray pattern of Beta-Cristobalite.

There are many specimens in collections labelled "opal" which do not have the luster that truly amorphous substances have and since an X-ray machine for crystal structure is usually not available for mineral collectors, an attempt was made to determine some simpler method for distinguishing between true opal and other forms of silica resembling it.

The simplest test appeared to be one for brittleness. This was successful in some cases but proved unreliable in opals other than the fire or precious opal. Hardness tests were open to the same objections as those for brittleness. Color alone is not a good criterion.

No correlation between the moisture content and the crystal structure was found in the literature and although the determination of the water content requires some equipment, yet it is easier to make this test than it is to determine the crystal structure. In order to determine whether the water content could be used to identify an opal, it was necessary to obtain several specimens for both water and crystal analysis.

Dr. Gerald U. Greene, of Fenn College, kindly gave me 17 different specimens from his collection for this research. The samples were finely powdered and a moisture determination run on a one-half gram sample of each specimen. Other samples were used for the crystal

(1) Undergraduate student in metallurgy at Fenn College.

(2) "Some Properties of Opal", by N. L. Taliaferro. American Journal of Science. 1935. 5th series. p-460.

TABLE NO. 1

Sample No.	Description	Locality	Per cent water	Crystal Structure
1.	Yellow Opal	Germany	7.26	Cristobalite (faint)
2.	White Opal	California	6.64	Cristobalite
3.	White and brown mottled opal	Germany	1.00	Quartz
4.	Brown and gray mottled opal	Germany	5.66	Cristobalite
5.	White and brown mottled opal	Germany	1.12	Quartz
6.	Mexican fire opal	Mexico	*	Amorphous
7.	Brown opal	Germany	7.12	Cristobalite (faint)
8.	Geyserite	Yellowstone National Park	10.94	Amorphous
9.	Fire opal	Honduras	7,30	Amorphous
10.	Brown opal	Nevada	5.10	Cristobalite
11.	Fire opal	Australia	8.40	Amorphous
12.	Blue opal	Nevada	3.00	Cristobalite
13.	White opal	Nevada	7.48	Cristobalite (faint)
14.	White opal	Nevada	8.30	Cristobalite (faint)
15.	Yellow opal	Nevada	4.30	Cristobalite
16.	Green opal	Nevada	10.64	Amorphous
17.	Opalized wood	Yellowstone National Park	2.40	Quartz

* There was not enough of this sample to analyze for water.

structure determination.

Table No. 1 shows the results obtained in this research. It is interesting to note that the samples giving the structure of quartz contain but a small amount of water. The moisture content of those giving the crystal pattern of cristobalite covers a greater range and overlaps the range of the true opals. It appears that a moisture content greater than 10 per cent prevents the formation of a crystalline structure. The two samples of opal containing less than 10 per cent were small fragments which may have lost some water because of their large surface area. It will also be noted that the specimens showing the cristobalite structure with high water content gave only faint lines. This may be interpreted to mean that most of the material present is in the amorphous form.

In conclusion I wish to suggest that the moisture content may be used as a better criterion than any other except that of X-ray or petrographic analysis for distinguishing between opal and other forms of silica which resembles opal.

World's Largest Lead Mines in Missouri

Missouri has the largest lead mines in the world and about 90% of its ores are mined in the southeastern part of the state, chiefly in St. Francois and Madison Counties. The chief mines are Bonne Terre, Flat River, and Leadwood in St. Francois County; and at Fredericktown and Mine La Motte in Madison County.

Many interesting minerals can be found in the lead mines, and especially at Mine La Motte which has produced some very fine specimens. Among the minerals that have been found at Mine La Motte are: Aragonite, cerussite, chalcopyrite, galena, linnæite, malachite, marcasite, and smaltite.

The remaining 10% of Missouri's production of lead comes from the southwestern part of the state, chiefly in the Joplin district which is world famous for its fine crystallized minerals.

DYER QUARRY ZEOLITES (Part 3)

By C. A. THOMAS

706 Church Street, Royersford, Penn.

Dyer's only operating quarry near Monocacy, Penn., is huge. For visitors entering the area from Reading on route 83 (Sckuylkill Road) go through the town of Monocacy until two railroads are crossed. One road-bed is in a gorge the other is on the top of a rise of land and both are crossed almost at once. Turn right after passing the "S" turn bridge and coming to a fork, bear right. A gradual climb into picturesque hills for possibly a mile brings the traveler to an insignificant looking road tumbling rockily down through a wood on the left. Low gear is needed for this climb but not for long for after a tenth of a mile or two the road dips down into the quarry.

The view of the quarry from the top of the rise in the wood is something to behold. The writer is always thrilled as were his friends who were taken there. The existance of the huge cavity in the mountain is totally unsuspected since it is not visible from any well-traveled hiway.

One of the first sights striking the scenic eye is the white vapor rising from the many steam-engines which appear to run on standard gauge track. Neat buildings and the crusher tell a story of modernization. The crusher is no doubt one of the largest ever built anywhere. If one arrives after noon of a Sunday or Saturday, George, the watchman and engine-fireman, will quickly size up the party and, according to George, he is quick to see that mineral collectors are worthy of his hospitality. George is a philosopher of a sort and five or ten minutes "chewing" with him is time well spent. He will show you the boulder with the cork-screw hole in it which rests quite near the office building. From there on George will keep a kindly eye on visitors—from a distance. Salt o' the Earth, is George.

Visitors will see a tumbling waterfall in the quarry unless they miss it by driving to the center of the spacious quarry floor. Following the rail-tracks along the right side of the quarry one will come to a sort of recess in the walls—a sort of corner of the quarry. On a hot summer day this corner is always cool and it is here that the best calcite rhombs have been collected. This calcite runs the color chart from white to mahogany brown. Some huge cavities occasionly supply crystals over one inch across and beautifully aggregated. For some reason the fluorescence of this material is several tones duller than the Hay Creek Quarry specimens. White veins of stilbite and some snowy white laumontite are in evidence. On breaking apart some masses of matrix in which a cavity is suspected, one at times observes a wet black deposit adhereing to calcite crystals which under a lens appear to be small round spheres with a metallic sheen like graphite. Upon drying, however, these little balls look like plain mud and readily wash off. Black calcites seem to have an inclusion of this dark mineral.

Good fluorescent specimens are available—calcites of course, but interesting. In an old part of the quarry the writer picked up a large mass of loosely adhereing crystals which were in a perpetual shower of ground water dropping from above. The crystals are much etched and secondary crystals seem to have formed on the larger etched crystals. Possibly only a few years of the shower bath brought about the appearance of this specimen. No other calcites like it are to be found anywhere in the quarry. It fluoresces light green under 3650 A.U.

At about the middle of the quarry a pinkish white vein of extremely hard material runs straight up the solid diabase wall. Some white matrix hard material contains a network of black sphene-like material in individual crystals. A greenish refraction denotes hornblende?

Apophyllite crystals can be seen in small cavities or adhereing unmoveably to large trap boulders. These brilliant crystals sparkle like diamonds from a dis-

tance. The present blasting does not seem to reveal any apophyllite. The stilbites do not compare with the Hay Creek property material but some beauties for the micromounts are to be had. Tiny adhereing calcites, too, are lacking but small cavities filled with light bluish green hairs are common. Some of the whiter hairs may be natrolite. Some may be byssolite. Blue coatings are probably massive vivianite but may be bluish byssolite also.

The writer has despaired of trying to identify all the different tiny needles found in cavities at Dyer's Quarry. The bunched and compact stilbites may be intermixed with natrolite but as far as the writer knows he has no definate specimens of natrolite from this quarry, though Sam Gordon lists it in his book "The Mineralogy of Pennsylvania" as a mineral to be found in this diabase sill further west in the Hay Creek properties.

Before closing I would like to tell of the most perfect prehnite specimens found here by the quarry manager. These specimens although all prehnite were cream-white in perfect aggregation of one inch crystals; pure white in heavy compact radiations; peridot-green (beautiful) in thick wide radiations, a gorgeous specimen; a five pound cavity of solid mammillary blue-green prehnite, sparkling, translucent; and last but not least a ten or fifteen pound large prehnite filled cavity with positively perfect prehnite single crystals up to one inch or better, optically clear giving no hint that it was prehnite although the writer guessed its correct identification on first inspection. A smaller rectangular cube-shaped crystal, faces the large ones directly opposite like a small child. In another deep recess in the green cavity is a multifaceted crystal equally as clear as the larger. In spite of the thickness of the large crystal the writer believes that newsprint could be read through it. Unfortunately a larger crystal outside of the main cavity was damaged. The writer doubts if a like specimen will ever be found again at this locality.

Something should be said about events leading up to the discovery of the above mentioned prehnites. The quarry men had tunnelled into a wall of solid compact hard diabase, then exacavated a spur to the left and right forming a "T" fifty feet or more into the solid rock. This "T" finally was loaded with about 80 tons of dynamite and on a Saturday was set off. In spite of the load of explosive the blast was "gentle", moving the lower rock wall out and moving only portions of the upper wall. It was a successful blasting operation, however, and after the dust cleared and some clearing done about the tracks the quarry manager saw the beautiful prehnite specimens. There were probably other specimens but the Dyer people are interested in moving road-metal endlessly to the crusher, so a more thorough search for specimens was not carried out.

Recently another and the last "T" blast possible to make was set off exactly like the first. This one was not successful like the first one due to the extreme hardness and solidity of the quarry wall. In the future, quarry blasts will be arranged to remove the quarry floor and it is the writer's opinion that mineral collectors will have something to look forward to when the new plans get under way.

Prehnite is not a zeolite but is closely associated with them. Heulandite, laumontite, thomsonite, stilbite, arsenopyrite and erythrite can be found at Monocacy as well as at Hay Creek.

Red Crystals on Wheatley Sphalerite

Microscopic brilliant red crystals were discovered on dark brown Wheatley sphalerite. Friends of the writer believed for a moment that they were the tiny red insect eggs often found in cavities in minerals in this area (Phoenixville, Pa). After one year, however, the "eggs" are still there and as glistening as ever. There is a possibility that these minute crystals are cuprite, red-silver or zincite. The crystals are brilliant red and are not securely attached to the sphalerite. If anyone has had experience with these red elongated crystals please write their opinions to *Rocks and Minerals* or to Charles A. Thomas, 706 Church Street, Royersford, Pa.

A TRIP TO DELAWARE

By PETER ZODAC

Editor Rocks and Minerals

On Thursday, August 14, 1941, the writer and Joe deLuca, a friend from Peekskill, N. Y., made a business trip to Philadelphia, Penn. The trip was made by car and as we left early in the morning and our business in Philadelphia was settled sooner then expected, we had the entire afternoon free. Not wishing to return home immediately, we decided to head southward for Wilmington, Del., on a little mineralogical excursion.

A rock outcrop in Philadelphia

In the city of Philadelphia, while following U.S. 1, and just before crossing the Schuylkill River, we noticed a large rock outcrop on our right and right alongside a small creek. We had noticed this rock on previous trips through the city but never had an opportunity to examine it. So we parked our car on Ridge Avenue (just 100 ft. from the outcrop) and then walked over to the site. We found the rock to be mica schist and the part exposed along the creek was 100 ft. long and 50 ft. high. It was in Fairmount Park and along the north bank of Wissahickon Creek. Although the Park is noted for many interesting minerals, the only mineral we saw in the outcrop was muscovite which was present in small lustrous flakes.

Petrillo Quarry in Wilmington

On the western outskirts of Philadelphia, we turned left on U.S. 13 and headed south for Wilmington, passing through Lansdowne, Sharon Hill, Chester, Marcus Hook (state line here), and Clayton, Del. About 5½ miles south from Clayton and in Wilmington, we chanced to notice a quarry to our left and we stopped to investigate it. It was in operation and permission to visit it was readily granted by the owner and operator, Mr. A. Petrillo, who was in the office. We were told by Mr. Petrillo that the rock was used for crushed stone and that the quarry had been opened up originally 75 years ago by Pete Dye. We found the quarry to be about 600 ft. long, 500 ft. wide, and 75 ft. high. It was on the north side of Edgemoor Road (Sellers Park is on the south side) and only 200 ft. east of Rt. 13 (N, Market St. which is also known as Philadelphia Pike). The rock was a dark gray gabbro and though the quarry was large it produced no mineral specimens of interest except some fairly nice masses of smoky quartz.

Hubbard Quarry in Wilmington

Leaving Petrillo's quarry, we continued on Route 13 towards the business section of the city and went just 2 miles when we made a right turn (at a bridge) on Glen Ave. We followed this road for 1½ miles (it paralleled Brandywine Creek to the left) until we reached the old abandoned Hubbard quarry. (For those who may want to visit this noted quarry, the following notes may be of value (0.0 miles at bridge; 0.6 crossroads; 1.1 R.R. bridge overhead; 1.2 paper factory to left; 1.3 keep left at fork; 1.5 miles quarry. Glen Ave. is a macadam road to the factory, a dirt road from then on). The quarry was 800 ft. in diameter with vertical walls 100 ft. high; it is about 100 ft. east of Brandywine Creek which here is about 100 ft. wide.

The Hubbard quarry (also known as the Brandywine quarry) was at one time a famous locality for minerals among which may be mentioned apatite, bornite, calcite, canbyite (a new mineral first found here), chabazite, chalcocite, chalcopyrite, epidesmine, garnet, hisingerite, laumontite, marcasite, natrolite, pyrite, pyrrhotite, quartz xls, and stilbite.[1] We found a number of interesting specimens such as biotite, chlorite, orthoclase, pyrite, quartz, and excellent gabbro specimens which is the rock of the quarry.

Our chief interest for going to Wilmington was to visit the old abandoned Dixon feldspar quarry which was said to be located 6 miles northwest of the city.

1 Some minerals of Delaware, by Alfred C. Hawkins. *Rocks and Minerals*, Nov. 1936, pp. 216-117.

No one who was approached ever heard of it and so its location could not be ascertained. A few months ago, Mr. Ernest Conklin, of Peekskill, N. Y., who had been a resident of Wilmington for a number of months, learned that the quarry had been obliterated—a reservoir was built by the city some years ago and the quarry is now said to be buried deep under water.

Mullica Hill, N. J.

In Wilmington we crossed the Delaware River, via ferry, to Penns Grove, N. J., from which point we headed northward for New York City. We made a number of stops in New Jersey but the one of great interest was made at Mullica Hill, the famous locality for vivianite. Mullica Hill is a little village in southwestern New Jersey (in Gloucester County) on N. J. 45. Right in front of the Harmony Fire Co. a road turns off N. J. 45, and 150 ft. in on this road is a 30 foot bank which is approximately 200 ft. long. The bank consists of impure glauconite and the following was found in it:

Glauconite: dark greenish earthy masses.

Hematite: dark reddish earthy masses.

Limonite: light to dark brown earthy masses.

Vivianite: bluish earthy masses only — no crystals seen.

Fossils: a number of brachiopods embedded in impure glauconite were found. The prize fossil specimen, however, was a very good shark's tooth about an inch in length, imbedded in an impure hematite-glauconite mass. The mass broke nicely so as to expose the tooth which is dark gray in color and projects cleanly for almost ½ inch. We had only about 15 minutes to spend at the locality as it was getting late and we were anxious to reach New York City before dark.

Reed Iron Mine of Georgia

The Reed Iron Mine is located near Cedartown, western Polk County, in northwestern Georgia. The ore is limonite. Some nice specimens of iridescent limonite have been found here. Nice specimens of pink rhodochrosite on lurous black turgite which in turn is on limonite have also been found.

Diamonds in British Guiana

Diamonds of excellent quality are found in British Guiana and all are obtained from alluvial deposits. The chief deposits are in the Mazaruni Valley, about 130 miles southwest from Georgetown (chief town, port, and capital of British Guiana). The diamonds are found in shallow deposits, in gravel which is derived almost entirely from quartz conglomerate; the gravel consists of quartz pebbles of all colors. Gold, ilmenite, tourmaline, and other minerals are found with the diamonds. The Potaro River diamond district ranks second in importance.

The diamondiferous area of British Guiana is over 6,000 sq. miles, extending in a northerly direction from the Potaro River to the Cuyuni River, (the Mazaruni River is about midway) a distance of 150 miles, and eastwardly 40 miles from the foot of the Pakairama Mts.

Diamonds in British Guiana were first found in the gold placers, the few stones thus recovered attracted considerable interest. In 1890, a gold expedition to the Upper Mazaruni River discovered a large deposit of diamonds on the Putareng Creek and this was the beginning of diamond mining in the country. It is recorded that a Negro prospector, named Gilkes, was the discoverer of the diamonds on Putareng Creek.

"Silver, By-Product of Wheatley"

Silver had been taken out of the Wheatley Mine area at the rate of $1.00 per pound of ore. Not all of the galena was argentiferous — some contained gold in extractible amounts. A black galena-silver mud was a source of silver at one or two of the mines. Hard gneiss also contained lead and silver. Beautiful pyromorphite, cerussite, anglesite crystals and honey colored transparent sphalerite crystals may still be found there — in micro-mount sizes.

The old Wheatley lead mines, long abandoned, are 2 miles south of Phoenixville, Penn.

A TRIP TO THE WEST INDIES

By SAMUEL C. BROWN

Stamford Museum, Stamford, Conn.

Some years ago when the Atlantic Ocean and the Caribbean Sea were safe for travel from the danger of submarines and torpedoes, the writer with a friend spent a month among the major West Indies Islands and a couple of countries adjacent to the Caribbean Sea.

Bahama Islands

After leaving the dock at Hoboken, N. J., in early February, with a driving snowstorm covering the deck of our steamer, the first port was Nassau in the Bahama Islands. Most of these islands are of coral formation, and reefs abound around them; in Nassau we noted several small caves of Eolian formation, and one, not far form the center of the town, was interesting as the stalactites and stalagmites although not very large were of a light yellow color.

Cuba

From the Bahamas the next port was Havana, Cuba, then around the south side to Santiago. Although we were two days in Cuba, we did not get a chance to visit the iron and copper mines not far from Santiago. The famous El Cobre copper mine is only 9 miles west of Santiago.

Canal Zone and Panama

Our next stop was the Canal Zone and Panama. We did some shopping in Colon, on the Atlantic side of the Canal, and noted many types of jewelry, some were genuine but a lot were fakes; for instance, the writer was looking at some amber necklaces for a friend, the proprietor brought out several trays of them, and most of the amber had the hardness of glass as we soon found out.

The Canal Zone is noted for its agate and jasper pebbles (dug out of the diggings for the canal) while Panama contains many minerals among which are asbestos, copper, gold, manganese, and iron. Some interesting agates, chalcedony, and other minerals were recently found on the Pacific side of the country by Sgt. George Molnar, of Perth Amboy, N. J., a member of the R. & M. A.

Jamaica

We stopped at the port of Kingston in Jamaica, and thence rode across the Island to Port Antonio. This ride was wonderful from a scenic view, the numerous varieties of vegetation and flowers seen were beyond description.

Jamaica, the largest of the British West Indies islands, is very mountainous — its highest mountain, Blue Mountain Peak, 7,388 ft. high — is in the east. There are a number of caves on the island which contain beautiful stalactites and stalagmites; the Oxford Caves, in the May Day Mountains, are in the center part, and the Seven Rivers Cave is in the northwestern part of the island. The Roaring River Falls, 150 ft. high and over 200 ft. wide are the highest on the island and are located in the northern part. That gold and copper were once mined is attested by the names given to two streams. Rio de Oro (Gold River) and Rio Cobre (Copper River). Several old copper mines, abandoned for many years, are in the southern part of the island.

Colombia

After leaving Jamaica we passed close to the shore of Central America, until we entered the port of Cartagena in Colombia, South America. Colombia is noted for its fine emeralds, and as our time was limited to about half a day we again visited the jewelry shops. In one of the larger stores in Cartagena the proprietor brought out a tray from a vault with a fine display of cut gem emeralds; one was an uncut crystal in a matrix. The chief emerald mines are at Muzo, in the mountains north of Bogota, the capital of the country.

Venezuela

As the day was getting late we went on board our steamer, "the good ship S.S. Veendam". Soon the hoarse whistle of "all aboard" was heard, and our next stop was the seaport of Venezuela, La Guaira, where we got off to board the electric train to the capital of the country, Caracas. This ride of 23 miles over the

Andes was most interesting (from the hot humid climate of La Guaira to the almost semi-tropic temperature of Caracas) some parts of the ride was over 3,000 feet elevation, while Caracas is 2,500 feeet. Gold, copper, and other minerals are mined but the chief mineral wealth is in oil, indeed Venezuela is not only the chief producing country in South America but is one of the Chief oil producing countries of the world.

Trinidad

We will pass on to the next stop, Port of Spain in Trinidad (northwest coast). Trinidad is unlike most of the West Indies' Islands, the greater part of the inhabitants are from India. We spent a greater part of our stay by visiting the numerous jewelry shops. In one of the largest shops we were shown trays of cut gems as emeralds, sapphires, rubies, and the cheaper stones; the proprietor showed us some rubes, one of which had belonged to an East Indian Prince. It was a beauty! We noted that he placed this tray very carefully in a vault. We were sorry that there were no uncut or matrix specimens.

As that famous Pitch Lake, is located in Trinidad about 40 miles south from Port of Spain, we did not have the time to visit that interesting Lake.

Due to the mud and silt deposited in the Gulf of Para where our steamer was anchored, it was sometime before we could get under way; this mud came from the Orinoco River in Venezuela.

Barbados

The Island of Barbados was the next place to visit. This beautiful island reminded us of our own state of Connecticut, especially the low rounded hills. A greater part of this island is of coral formation, and numerous caves may be found in limestone. We visited a fair size cave in the Parish of St. Johns, the stalactites and stalagmites were opaque and pure white, this gave the cave a very light appearance, therefore artificial lighting was not required. The floor of the cave was strewn with broken and some perfect stalactites and we brought some samples home with us.

Martinique

From Barbados our next stop was Fort De France, in Martinique. We were supposed to make a stop at St. Pierre, the city of 30,000 inhabitants that was destroyed by the eruption of Mt. Pelee in 1902. As the volcano was active in throwing out bombs and poisonous gases, the captain thought it best not to anchor and allow the tourists to land, however, the steamer passed slowly in along the shore, which gave the tourists a fine view of the first volcano some of them had ever seen in action. We would have enjoyed visiting the ruins and securing samples of the volcanic scoria.

Virgin Islands and Porto Rico

Our next port was St. Thomas in the Virgin Islands. We did not have time to look around this island as the time was limited to four hours. The next stop was San Juan, Porto Rico. We visited this island before, were about forty miles in the interior, but never found anything of interest to the mineralogist, with the exception of a small cave in a sandstone formation on the side of a small hill.

Porto Rico is known for many minerals, however, and some of them have been described by Horatio C. Ray in "Minerals of Porto Rico", *Rocks and Minerals*, October, 1941, pp. 355-359 (with folded map).

Bermuda Islands

A sail of about 800 miles northward brought us to the Bermuda Islands, our last stop before New York City was reached. We have visited these Islands several times. They are all of coral formation and of special interest to the geologist are the reefs along the shores, the numerous caves, and the quarries from which limestone was taken for building purposes. We were much interested in Crystal Cave and the many different stalactite and stalagmite formations of pure white calcite, found in it.

A very good article on the islands is "Bermuda, a product of the Ice Ages", by C. M. Allen, *Rocks and Minerals*, Nov. 1940, pp. 363-368.

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Hugh McCrory, an R & M A member from Helena, Mont., who has been instrumental in obtaining for us a number of new members, is drill panning for placer gold for the Idaho Canadian Dredging Co., with offices at Boise, Idaho.

The Amateur Lapidary

BRACELETS WITHOUT BEZELS. Part 3

By LUCILLE SANGER

Practically every rock enthusiast is intrigued by the delicacy and color of shells. They have been used for adornment since prehistoric times and shell jewelry is easily obtainable nearly every place where jewelry is on sale. Lovely as most of it is, there is no thrill in a "store bought" piece to compare with that of turning out one's own.

The suggestion offered here is a variation of a bracelet that is probably familiar to the reader as it has been on the market for years. It is always made up in brass, the circle being a chain of brass links, and attached to it by brass wires are little iridescent spiral shells, something on the order of snail shells. The shells are very delicate in appearance and in actuality, and such a bracelet will not stand the wear to be found in hard stones. Even though the wearer must be careful of it, a bracelet made of these shells is well worth the trouble it takes.

The variation on the above bracelet consists of one good sized shell "cabochon" at the top of the wrist, and to it on each side is fastened a chain holding the spiral shells and bell charms.

The metal used is sterling wire about 20 gauge. If there are to be no bells, then gold wire may be used.

Choose a shell which can be made into a flat or slightly rounded oval shape, about an inch and a half for a seven inch bracelet and a little more or less for a smaller or larger size. The writer prefers abalone, either Fort Bragg or Santa Barbara, as the colors harmonize well with the spiral shells. Polish the outside of the abalone and let the curved inner surface fit the wrist. Drill a hole in each end of the cabochon about an eighth of an inch from the edge. This may be done with a steel twist drill of the proper size

Make two oval links a little more than an eighth of an inch long. These will be fitted into the drilled holes and carry a round link. They must be no longer than will allow them to move freely after soldering. Now make two round links a quarter of an inch in diameter or better. Solder these round links separately. Now through each one slip an oval link and put the oval link through the drilled hole. Fit the ends together. Bury the shell in a thick coat of wet asbestos cement, leaving the joints out and facing up for ease in soldering. An oxygen or acetylene torch is ideal for soldering such joints as the flame is very hot and does the work quickly and without damage to the shell. In using an ordinary gas torch the flame is not so hot and takes longer to do the work, so do not be surprised if the asbestos dries out and burns the shell. It is well to make an extra one or so just in case. They can always be used for something else.

When the soldering is successfully concluded, there will be a shell cabochon with an oval link at each end and in each oval link is a round one. As it is not safe to pickle this piece, use fine emery paper to get the soldering crust off and polish on the muslin buff with rouge in the usual way.

Mark off the length of the finished bracelet on the bench. Put the shell at one end with the links spread out. The remaining space will give the length of the chain which is now to be made.

Make the chain of oval links put together with round links. No fancy links or decorations should be used in this type of bracelet as plainness and simplicity makes the beauty of this piece. At each end of the chain, solder the end of a 1/4 inch piece of wire. This wire should

be slightly heavier than that used for the chain and should run, after soldering, in the same direction of the chain. Cut two ½ inch pieces of the same heavy wire, and solder a small ball to each end. Do not melt part of the wire at each end for this as the balls will not turn out to be the same size. There are now two ½ inch pieces of wire which resemble the dumb-bells used in a gymnasium. Find and mark the exact center of each of these wires and solder at right angles to the little bar at each end of the chain, making a wire T. The chain is now complete and ready to fasten to the oval shell by threading the little cross bars through the round links on the abalone. No other fastener is needed.

If new spiral shells are to be used, they will have to be drilled with a small gauge twist drill. If the shells are taken from one of the commercial brass bracelets, the holes will be there and also, probably, some little blue beads which fit onto the ends of the wires inside the shells. The ambitious lapidarist can make and drill beads to be used for this project, or the old beads can be used, or new commercial ones purchased, or no beads at all need be used. However, opaque beads of a light delicate color add charm to the finished bracelet.

Cut wires of the same gauge as the chain, into inch lengths or more. Melt a ball on one end of each piece. If no beads are to used, make the ball larger, but it should be smaller if beads are used, — just large enough to keep from slipping through the bead. It is probably better to make a trial ball and stem before cutting the other wires, since each worker will melt a different size ball at the end, thus making a difference in the length of the wires needed.

Pickle both the chain and the wires. The chain can be hooked into the pickle in the usual manner, but the wire can be laid on the glass part of a two section Mason jar cover. This makes a small shallow tray to hold the wires and can be set into the pickle jar. Remove from pickle, wash and polish on the muslin buff after emery paper has been used where needed. A strong smooth piece of wood should be used to stretch the chain on while it is being polished. Hold it firmly at each end of the piece of wood. This allows pressure to be used without bending the links. Use a smaller piece of wood for the pins, but polish the head by holding firmly by the stem just under the ball. Wash and dry.

If beads are used, put a bead on a stem, put the stem through the hole in the spiral shell and then through a link of the chain. Bend the end back against the stem to form a link. Allow enough play so that all pieces move freely but there is no undue looseness.

Those who collect rocks are quite likely to collect other things too, and anyone who makes this bracelet may be lucky enough to have some tiny antique silver bells. This writer was fortunate enough to have inherited some, which really rang, and which had originally trimmed the edges of an old "bluebell" costume. However, if such antiques are not available, all is not lost, as such bells may be cast or raised and have a hole drilled in the top. A clapper is made by melting a ball on the end of a piece of wire and bending a ring in the other end. Bend the end of another short piece of wire through this ring and complete into a ring. Now push the straight end of the wire through the hole in the top of the bell and bend into another ring on top which fits closely to the bell, but allows all pieces to move freely. Fasten the bell with another ring to the chain. If it is desired to solder the bells to the chain, they should be added to the chain before it is pickled, and care must be taken in polishing to avoid injurying the bells. If the silversmith is lucky, the bells will make a tiny tinkle.

Bells and shells should be placed alternately on the bracelet.

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Must Have R. & M.!

Editor R. & M.:

For an amateur mineralogist, *Rocks and Minerals* is so good a collector simply cannot live without t.

Adolph Jarvimaki
Frazee, Minn.
April 8, 1946

"ME AND PA." TWO OLD ROCKHOUNDS

Dear Editor:

Just to show you how easily a word from another rockhound will start a train of events! Some time ago Harry, a rockhound friend of Pa's, came for a few minutes visit. Harry did not even intend to sit down but he casually mentioned that he had a week off and about two hours later he and Pa had decided that the Mojave Desert (in California) was a good place to spend that week.

After scrutinizing all the maps that Pa had saved up for the past few years and going over back numbers of *Rocks and Minerals,* they decided that Red Rock Canyon and Mule Springs was the place to 'Look See' for cutting material. They both agreed that Mule Springs must have something left of interest because of a write up in the May, 1935, issue of Rocks and Minerals even though another number notified the public that all the good material had been swept out of that territory within a short time after the place was made public.

The next evening or two the two cronies put in checking their equipment and what excitement there was.—but, 'pshaw', there is no use in going over those hectic dreams but rather what information I gathered after their return to normal life.

They had planned on returning the 9th day but here they drove in with their treasures the evening of the 7th day, and then the information started to seep in and here it is as I gathered it.

"Well, Harry, that fellow at Ricardo Station, Red Rock Canyon, sure did tip us off as to where good jasper and agate could be found", as Pa made that statement he held aloft a large chunk of brownish, mottled gray and white agate, cloudy but translucent." That piece came from the place he told us to go" Pa added. Then Harry spoke up.

"Yes, that Barney Wolff is sure a friend to rockhounds and well worth the trip there but I would say they had better be prepared to camp out as Mr. Wolff has not finished preparing cabins for accommodations yet."*

It seems they were loaded down so heavily from Mule Springs that they had to postpone the other places they intended to visit. As they put it, "the fellow who said Mule Springs had been cleaned out of good material was slightly off", because they displayed a geode which was over 8" in diameter and when sawed surely a prize as it had but a small opening to one side with beautiful quartz crystals from small to over half inch in diameter and some blue and white chalcedony next to the main body which was brownish-yellow with bluish white chalcedony mixed with mottled spots of light and dark. All mostly translucent. Another one about 5" long and about 2" thick, when cut it showed half *true* onyx backed with mottled brown and bluish-white chalcedony with a small cavity partly crusted with calcite above the flat onyx. Many other smaller nodules that have not been cut which have great promises. The seams of jasp-agate and agate were so varied it would take pages to describe and truly beautiful. Pa said, "And it did not take over ten minutes digging to uncover those two prizes" and to repeat other conversations between those two; one of them crowed, "and we had to leave before half that territory was even looked at let alone prospected." I understand that Pa was running around like a scared rabbit just looking and grabbing here and there.

Will tell you later about the beautiful exhibits they saw on the way home. Just now Pa made a statement that indicates good advice, "Say, Ma, I believe I will write to Ernest Meier of Church St. Annex, New York City, and have him send me another selection of gem stones on approval because the other two lots were sure wonderful in putting class and sparkle to our collection. Even though we secured many beautiful specimens on this trip that firm surely offers some hard to get stones so reasonable."

With best wishes, sincerely,
ME, of the Two Old Rockhounds.

* Mr. Wolff stated that he would expect to have the cabins in operation some time in June or July.

CLUB AND SOCIETY NOTES

New York Mineralogical Club

American Museum of Natural History, New York, N. Y., Wednesday, March 20, 1946.

The meeting was called to order at 8:10 p.m. There was no report of the membership committee.

A temporary nominating committee was proposed: Dr. Kerr, Mr. Trainer, Mr. McKown, Mr. Boyle, Dr. Kindle.

There was no report of the excursion committee.

Dr. Pough announced that he and Dr. Hawkins were compiling data for a publication on mineral localities to be ready for fall publication. All members of the club were asked to cooperate by writing up localities with which they are familiar.

Mr. Holmes called several new publications to the attention of the members *MINERALS OF MIGHT*, by W. O. Hodgkiss, *URANIUM AND ATOMIC POWER*, by De Ment and Dake, a pamphlet issued by G. S. A. and the Carnegie Endowment for International Peace: *International Inspection of Radio-Active Mineral Production*. Also an article in *Economic Geology* on the Mica Deposits of New England, and an article on the Chromite Deposits of Baltimore Area in the *Maryland Journal of Natural History*.

Mr. Lee announced that Mr. Sampter has acquired some old copies of the *Exchangers Magazine* which gives details of some of the first meetings of the New York Mineralogical Club.

Mr. Lee suggested that perhaps we should have a 60th anniversary celebration next year.

Announcement was made of the opening of a mineral store at 110 Wall Street, New York City, by Mr. Ford. Dr. Pough also announced that the Museum Bookstore will sell Schortmann's minerals, a new lot to reach the Museum each month.

Mr. Louis Perloff was reelected to membership.

The business of the meeting was declared finished and Dr. Paul Kerr was introduced. Dr. Kerr spoke on a "Recent Mineralogical Reconnaissance". He spoke of the problems of wall rock alterations in three areas:

1—A Sericite deposit in Nevada.

2—Butte, Montana, where about $3,000,000 worth of metal has been mined.

3—Tintic district, Utah.

Dr. Kerr is particularly interested in the alterations of the wall rock into the various clay minerals.

The speaker showed kodachrome slides to illustrate his talk.

Respectfully submitted
Bernadette Marcin,
Secretary

Colorado Springs Mineralogical Society

The February meeting of the Colorado Springs Mineralogical Society came to order in the Chemical Laboratory of the Colorado Springs High School. Willet R. Willis, teacher of chemistry, and in charge of the program, "The Spectroscope and its uses", previously arranged three spectroscopes, one of which he had made and assembled, lectured and operated the instruments, using a number of minerals as examples of his explanations. A record attendance with interest and attention exemplified appreciation to a most able and qualified speaker for this unusual privilege.

The March meeting drew another large attendance with a Program persented by our vice-president, Robert Wilfley, "The effect of Bacteria on Mineral Deposits". Speaking from a mining experience he explained the action and effects of bacteria on minerals, naming a number of deposits and showing specimens for examples. Following the program a showing and sale of mineral specimens funrished by Schortmann's Mineral, Easthampton, Mass., climaxed a very interesting meeting.

April ushered in preliminary plans for a joint field trip with the Denver Colorado Mineral Society, to Crystal Peak, Colo., the famous microcline (amazonite) locality. Also two new members, Mr. and Mrs. Dodge, were accepted into the Society. An exceptionally large attendance enjoyed a fine program of historical nature by Robert Chadbourne, "Prehistoric Mining in America". This was unusually interesting because of the historical nature and the many rare artifice and primitive tool specimens shown which were made and used in the early days of mining from materials obtained from quarries and mineral deposits.

J. P. Osborn, President

Minnesota Mineral Club

On May 11, 1946, the Club will hold a field trip to the area north of Stillwater, Minn. The members will meet at the Roadside Parking Area, 1 mile north of the Stillwater, at 10 a.m. The explorations will be on foot from there (will return to the parking area for lunch at 1 p.m.) Members will bring their own lunch but the Club will furnish hot coffee.

Out of town visitors who would like to join us may write Mr. John D. Miller, 3107 Grand Avenue, Minneapolis 8, Minn. He will be glad to help them get to the meeting place. We will be prospecting for agates, jaspers, thomsonites and fossils in glacial drift.

B. G. Dahlberg
Pub. Dir.

Second Annual Meeting Rocky Mountain Federation Mineral Societies

The Second Annual Meeting of the Rocky Mountain Federation of Mineral Societies was held at Phoenix, Arizona, March 7th, 8th and 9th, 1946.

At the time of its organization at Denver in 1941 the Federation comprised fifteen member groups. The disruption following Pearl Harbor all but wiped out the infant organization. Some of the original member groups were forced to suspend completely; others curtailed activities to a greater or lesser degree. An annual meeting was held in 1942 at Salt Lake City. Through the uncertain war years five member groups held together and were the only ones represented at the recent meeting.

Because of the unusual crowded conditions prevailing in Phoenix during the winter season, the City Parks and Recreation Board, Mr. O. S. Halseth, Director, made available the facilities of the city"s huge South Mountain Park, eight miles from the business district. Camping facilities were provided in the army barracks. The theater was used for the meetings. Registration and the exhibit were in Park Headquarters.

The convention opened Thursday afternoon with registration at the Rock House. Visitors coming by auto began to arrive about noon. The total registration of guests was 149, the largest delegation came from the Mineralogical Society of Utah.

Formal sessions began Thursday evening in the theater. Following the introduction of guests, A. L. Flagg, President of the Federation and the host society the Mineralogical Society of Arizona, spoke on collecting in Arizona. Following the evening meeting there was a reception at the Rock House, visitors spending a social hour in the museum room.

The annual business meeting was held Friday morning. At this session Prof. J. J. Hayes, President of the Mineralogical Society of Utah, was elected president of the Federation for the ensuing year. Chester R. Howard, President of the Colorado Mineral Society, was elected vice-president and Mrs. Chas. W. Lockerbie, of the Mineralogical Society of Utah, Secretary-Treasurer. Salt Lake City was designated as the place for the 1947 meeting, the time to be determined by the host society. Following the business meeting. Prof. J. J. Hayes, of the Department of Mathmatics and Astronomy at the University of Utah, gave an illustrated lecture on the Geology of the Moon, after which members and guests had luncheon in the Hideout, one of the unique features in the 14,000 acres park.

In the afternoon attention was divided between a sight-seeing tour of the Valley of the Sun giving the visitors an opportunity to see something of Phoenix and its surroundings and visiting with each other. At seven the annual banquet was served to a capacity crowd in the Hideout.

Friday evening Barry M. Goldwater showed his color motion picture record of the boat trip down the Colorado river in 1941.

The exhibit consisted of selected specimens from the M.S.A. collection and units by several of its members. John W. Greb of Tacoma, Wash., and Thos. J. Bones of Vancouver, Wash., exhibited polished material.

Saturday was devoted to an all day field trip in which more than one hundred participated. The first stop was at the Lost Dutchman monument under the slopes of Superstition Mountain at Apache Junction, where Barry Storm, author of "Thunder Gods Gold", gave a talk on the legends, the lost mines and similar lore about Superstition. The party then proceeded to Canyon Lake and a short hike to a geode area. After lunch at Tortilla Flats the group moved to Mesquite Flat to collect thunder eggs and jasper of cutting quality.

The following day most visitors were on their way home, a few stopping to collect at easily accessable areas along the several routes. The convention was voted a success and all are looking forward to the next annual meeting in Salt Lake City in 1947.

A. L. Flagg
Retiring President

Newark Mineralogical Society

The 240th meeting of the Society was held on April 7th, 1946, in the Newark Museum, Newark, N. J. The afternoon was devoted to an interesting and educational discourse by Mr. Oscar R. Smith, whose topic was "The lore of precious stones".

Louis Reamer, Secretary

Queens Mineral Society

A regular meeting was held on April 4, 1946, at the Church of the Resurrection, 8501 —118 Street, Richmond Hill, New York. Mr. Frank Lewis was the speaker and his subject was "Radioactive minerals and radio-activity."

Ruth Grotheer, Secretary

New Jersey Mineralogical Society

Dr. A. F. Buddington, Head of the Geology Department of Princeton University, was the speaker at the April 2, 1946, meeting of the Society. The subject of Dr. Buddington's talk was "Exploration for magnetite deposits in the Adirondacks of New York".

The Society meets at the Public Library, Plainfield, N. J., but the above meeting was held at Princeton University, Princeton, N. J.

Pacific Mineral Society

A dinner meeting of the Society was held at the Eleda Restaurant in Los Angeles, Calif., on April 12, 1946. Ernest W. Chapman, an honorary member of the Society, was the speaker whose subject was "Minerals of Broken Hill, N.S.W."

Mineralogical Society of Southern Nevada

A regular meeting of the Society was held on April 19, 1946, in Boulder City, Nev. The speaker was Dr. D. S. Carter who spoke on the geology of the Boulder Dam area.

North Jersey Mineral Society

The 14th meeting of the Society was held on April 18, 1946, at the Paterson Museum, Paterson, N. J. "What makes a gem?" was the question under discussion and five requisites were considered necessary—beauty, hardness, rarity, crystalline structure, and prestige. There were 42 in attendance and the meeting received a nice write-up in the April 20th *Paterson Morning Call.*

Monterey Bay Mineral Society

A regular meeting was held on March 11, 1946, at the Y.M.C.A., Salinas, Calif. There were 125 present at the meeting which included Rock Pups (junior clubs of grade and high school age sponsored by the Society).

Mr. Bert Van Cleve, of the Owens-Illinois Glass Co. of San Francisco, showed his film "Sand and Flame" and spoke on the modern advances in the glass industry.

Mrs. H. M. Samuelson, of Salinas, donated a beautifully cut and polished specimen again —this time a moss agate which was awarded to John Grau of Salinas. The Sapphire Scriber sent from Missouri was awarded to Dr. K. W. Blaylock, of Salinas.

We voted that 20% of outside agents (and 10% of members) sales of mineral specimens made at meetings would go to the Society.

Jane B. Flippin, Secretary

Yavapai Gem and Mineral Society

Prescott, Arizona. At their April meeting the Yavapai Gem and Mineral Society held a very successful rock auction. The proceeds will be used to buy cups and thermos jugs, Alvin A. Hanson, president of the organization, made the event a lively one as he auctioned off a large variety of Arizona minerals, petrified fossils and polished slabs. A good many four-legged creatures have been auctioned off at different times around Prescott, but this is the first time an auction of rocks has been held there. Old time prospectors are still scratching their chins and wondering about it.

Ida Smith, Secretary

Mineralogical Society (London, England)

A regular meeting of the Society was held on March 28, 1946, in the apartments of the Geological Society of London. The following papers were read: "An improved polarizing microscope", by Dr. A. F. Hallimond and Mr. E. W. Taylor; "A rapid method for the separation and estimation of barium and calcium in rocks", by Mr. G. H. Osborne; "A manganese-rich chlorite from Benallt mine, Rhiw, Carnarvonshire", by Dr. W. Campbell Smith, Dr. Max H. Hey, and Mr. F. A. Bannister; and "Note on the determination of the orientation of section planes of meteoric irons" by Dr. P. Terpstra.

Mineralogical Club of Hartford

A regular meeting of the Club was held at 249 High Street, Hartford, Conn., on April 10, 1946. The program consisted of a discussion of plans for summer field trips.

Yavapai Gem and Mineral Society

Prescott, Arizona. H. C. Loesche, of the U. S. Bureau of Mines, presented a series of talking motion pictures on mining at the March meeting of the Yavapai Gem and Mineral Society. The first series told the story of copper from the time it is mined until it is sent to the U. S. mints, and to the fabrication factories. The second series of pictures was about Arizona and its mineral resources and scenic wonders.

A rock auction was scheduled for the April meeting of the society.

Ida Smith, Secretary

Worcester Mineral Club

A regular meeting of the Club was held at its headquarters in Worcester, Mass., on Feb. 18, 1946. The speaker was Walter H. Wakefield, Curator of Minerals of the Worcester Natural History Society. Subject: Fluorescence. Mr. Wakefield had on exhibition a large number of his specimens which he tested with two different types of lamps.

A regular meeting of the Club was held on March 4, 1946, at which the speaker was John H. Brodrick, club member and founder of Old Timers Club. He brought to the meeting about 500 specimens of his Chiastolites, nearly all polished, and gave an informal talk on them.

Miss Susan G. Ayres, Sec.

Central Iowa Mineral Club

The 2nd meeting of the Club was held on Friday evening, April 5, 1946, at the Y. M. C. A., Des Moines, Iowa. There were 25 members present, among them being Leslie Dean of Le Grand, Iowa, the well-known authority on Crinoids.

A constitution and by-laws were presented by a committee and approved by those present. The program committee submitted their plans for future meetings and field trips and these plans were also met with approval. Our speaker, Morris Mandelbaum, Jr., topped the evening with his talk on the "Hardness of minerals and gem materials" and with the showing of a gorgeous phantom quartz crystal from Brazil which he purchased several years ago. The remainder of the evening was spent in discussing and studying specimens of minerals and fossils found in Iowa.

Mrs. R. G. Hays, Secretary
1330—66th Street
Des Moines 11, Iowa

Northern California Mineral Society

Four meetings and a field trip were held by the Society during April, 1946. On April 5th, a business meeting was held. On April 12th, a micromount meeting. On April 17th, a general meeting at the Public Library, San Francisco, Calif. On April 26th, a lapidary night. On April 28th, a field trip to Lake County. On April 13th, the Society visited the mineral and mining exhibits at the University of California.

Mineralogical Society of Utah

The second convention of the Rocky Mountain Federation of Mineral Societies was held in Phoenix, Arizona, on March 7, 8, 9, 1946. A report on the activities, by A. L. Flagg, appears on another page in this issue.

The important items of business meeting held on the 8th were: the election of officers for the ensuing year, selection of a place for the 1947 convention, and the reduction of federation dues.

Election results: Prof. Junius J. Hayes, Salt Lake City, Utah, president.

Mr. Chester Howard, Denver, Colorado, vice-president.

Lillian M. Lockerbie, Salt Lake City, Utah, secretary-treasurer.

Salt Lake City was chosen as the next meeting place, special object to furnish visitors an opportunity to enjoy the Utah centennial celebration which will then be in progress.

Affiliated societies dues were changed from 25c per member annually, to $5.00 from each society having up to fifty members; $7.50 for fifty to one hundred members; $10.00 for those with over one hundred members.

Meetings had been suspended during the war, so this was the first gathering since 1942 in Salt Lake City. Of the fifteen societies in the original federation, only five have retained their activity.

A vote of thanks and appreciation from every individual of the federation should go to the retiring president, Mr. Arthur L. Flagg of Phoenix; to his secretary-treasurer, Mr. H. S. Keithley; and to their committees. Mr. Flagg especially was untiring in his effort to sustain the federation with all its affiliates and expended many, many hours in this endeavor. His correspondence was voluminous. For all who assisted in putting over the very creditable convention, our thanks too. Facilities were just not available, they had to be created. But, — the net results were appealing. Meeting old and making new acquaintances, exchanging or purchasing or collecting specimens, the friendly contact with the host society and with visitors, information and guidance to new collecting areas, plus the overall experience which one gains from such associations and the accessibility to Nature's wonders enroute, are well worth the time and expense incurred.

Lillian M. Lockerbie,
Secretary-Treasurer
223 West 9th, South St.
Salt Lake City 4, Utah

Gem Stone Collectors of Utah

The "Gem Stone Collectors of Utah" went on their first field trip March 31, to the Jericho agate locality. Despite wind and rain, forty "rcokhounds" turned out for the occasion, and the trip was quite successful. Iris agate, Opalized wood and Jasper were among the materials found. Indian relics were also found by a few of the members.

Ila Nelson, Secretary

Boston Mineral Club

On April 9, 1946, the Boston Mineral Club and the Harvard Geological Conference held a joint meeting at Harvard University, Cambridge, Mass. The speaker was Dr. Clifford Frondel whose subject was "History of American Mineralogy". Dr. Frondel is one of the authors of the 7th edition of Dana's *System of Mineralogy*.

On April 8th, the Club held a field trip to Gillette quarry at Haddem Neck, Conn.

Marquette Geologists Association

A regular meeting of the Association was held on April 6, 1946, at the Academy of Sciences, Chicago, Ill. Ben Hur Wilson was the speaker whose subject was "The structure and composition of minerals". Dr. John Ball's "Short lessons in geology" was also given.

Wisconsin Geological Society

A regular meeting of the Society was held on April 1, 1946, at the Milwaukee Public Library, Milwaukee, Wisc. The speaker was Frank L. Fleener, whose subject was "The dawn of a new era."

Mineralogical Society of So. California

A regular meeting of the Society was held on April 2, 1946, at the Public Library, Pasadena, Calif. Bill Sanborn was the speaker whose subject was "The Mammoth Mine at Tiger, Ariz."

Colorado Mineral Society

A regular meeting of the Society was held on April 5, 1946, at the Museum of Natural History, Denver, Colo. The speaker was E. Mitchell Gunnell whose subject was "Considering the unusual in mineral specimens".

Mineralogical Society of the District of Columbia

A regular meeting of the Society was held on April 19, 1946, at the U.S. National Museum, Washington, D.C. The speaker was Preston E. Cloud, of the U.S. Geological Survey, whose subject was "The bauxite deposits of the Appalachian region".

Maine Mineralogical and Geological Society

A regular meeting of the Society was held on March 29th, 1946, at 119 Exchange Street, Portland, Me. The program consisted of papers on uranium minerals and on the mining of gems by American Indians.

Junior Mineral Exchange

The Exchange is a mineral club for boys and girls from 13 to 17 years of age with over 35 members in 14 states. All interested juniors should contact the secretary, Jerome Eisenberg, 77 Victoria Street, Revere 51, Mass.

Rochester Academy of Science
(Mineralogical Section)

A regular meeting of the Section was held on April 11, 1946, at the Rochester Museum of Arts and Sciences, Rochester, N. Y. The program consisted of a discussion by Milroy N. Stewart on the Devonian fossils and fossil collecting in north-central Livingston County, N. Y., and a talk on fluorescence by Miss Alice Richardson.

. . . With Our Dealers . . .

Schortmann's Minerals, of Easthampton, Mass., have recently purchased a nice stock of Candian minerals.

The Keweenaw Agate Shop, of Ahmeek, Mich., have a May special in this issue.

The Hermosa Gem & Agate Shop, of Durango, Colo., extends an invitation to touring rockhounds to call on them.

Jack Frost, of Banning, Calif., has some nice slabs of gem quality sagenite and chrysocolla.

Do you like micro-mounts? See the list of interesting specimens in the ad of Hatfield Goudey, of Yerington, Nev.

Another color parade of minerals is featured this month by A. Joseph Alessi, of Lombard, Ill.

Fine minerals from an old collection are featured by Hugh A. Ford, of New York City.

A new advertiser is Lionel Day, of New York City, who is offering some facet cutting material.

A. L. Jarvis, of Watsonville, Calif., can supply jewelry findings and other lapidary material.

E. Mitchell Gunnell, of Denver, Cool., is with us again with some choice crystallized mineral specimens.

Professional cutting material for lapidaries can be obtained from Herbert Sussbach, of New York City.

A list of select minerals is that advertized by Graffham's Commercial Museum, of Ottawa, Kans.

Another page of fine specimens is advertised by the Wiener Mineral Co., of Tucson, Ariz.

A new grinding tool, the Cone Lap, will soon be put on the market by the Mountain Gem & Supply Co., of Durango, Colo.

Ralph Dury, of Cincinnati, Ohio, a new advertiser, has some beautifully preserved Ordovician fossils.

Lloyd M. Demrick, of San Francisco, Calif., will have a complete line of lapidary equipment on display at the California Convention, Glendale, Calif. Be sure to see it!

Ward"s of Rochester, N. Y., have just received a shipment of jadeite from Burma.

Arthur and Lucille Sanger, of Chicago, Ill., have some rock polisher bargains.

Calaverite and sylvanite, two rare tellurides, can be obtained from Thompson's Studio, of Pomona, Calif.

Some attractive fossil calamites of gem quality are in stock at Brown's Atelier, of Las Vegas, Nev.

Poly Products, of Pasadena, Calif., offer ball bearing arbors in this issue.

Another new advertiser in this issue is C. A. Weeks, of Meredith, N. H., who has in stock some very fine New England minerals.

Need any West Texas gem agate? Frank Duncan and Daughter, of Terlingua, Texas, can supply it.

Still another new advertiser is B. M. Brehm, of Warren, Ohio, who has an attractive offer in a beryllium group.

Crystal Mound, of Hurricane, Utah, also a new advertiser, can furnish very attractive specimens of selenite.

A sawed book-end or paper weight of black obsidian would look good on a desk. You can get them from C. A. Holliday, of Battle Mountain, Nev.

Roberts & Stevens, of Monterey Park, Calif., can furnish 10 Death Valley minerals.

Mrs. B. F. Nonneman, of Salinas, Calif., has another offer of colorful cabochon material

How about an attractive paper weight for your den? J. Elton Lodewick, of Portland, Ore., still another new advertiser, has a number in stock.

Gilbert W. Withers, of Atlanta, Ga., has in stock some very interesting southeastern minerals.

The Desert Rat's Nest, has reopened again and this time is located in Encinetas, Calif.

Charles E. Hill, of Phoenix, Ariz., announces that prices for his fine gem material will be advanced on the 1st of June.

The H. E. Powell Co., of Little Rock, Ark., extends an invitation to all touring rockhounds to call on them when in their vicinity.

E. W. Martin, of Ann Arbor, Mich., has a wide selection of choice minerals.

Crystallized turquoise, a rare mineral in any collection, is now available from John S. Albanese, of Newark, N. J. Get yourself a good specimen — it may be your one and only opportunity.

The Western Mineral Exchange, of Seattle, Wash., are so busy they cannot find time to perpare a new ad so the March ad is repeated.

R & M Is Accurate!

Editor R. & M.:

I have greatly enjoyed the informational articles in *Rocks and Minerals* and have found, upon application, that both you and your contributors have compiled and are compiling useful and accurate information. It is with regret that I point out this is contrary to results obtainable from so much authoritative writing done today.

Cpl. J. R. Seip, Jr.
Lynchburg, Va.

March 13, 1946

Bibliographical Notes

Selected Mineral Specimens: A new mineral catalog has just been released by Schortmann's Minerals, 6 McKinley Avenue, Easthampton, Mass. It is a most attractive publication of 60 pages with one illustration (a corner of their mineral display) and a sketch map showing their location in Easthampton. The catalog informs one that they are in their 11th year as dealers in selected mineral specimens. The catalog embraces selected mineral specimens (pp. 7-34); crystals (pp. 35-37); collections of minerals (pp. 38-40); fluorescent minerals (pp. 41-50); ultra-violet lamps (pp. 51-55); books on minerals (pp. 56-58); mineral hammers (p. 59). It has a handsome cover. Send for your copy TODAY!

Grieger's 1946 Victory Catalog: This is another very attractive catalog which has been released recently. It contains 64 pages with many good illustrations. The catalog is divided as follows: lapidary equipment (pp. 1-27); rough gem material (pp. 28-35); ultra-violet lamps (pp. 36-38); fluorescent minerals (pp. 39-41); magnifiers, etc. (pp. 42-44); books (pp. 45-57); magazines (pp. 58-60). This attractive catalog with its red-white-and blue cover is priced at 20c per copy and can be obtained from Grieger's, 1633 E. Walnut St., Pasadena 4, Calif.

Uranium and Atomic Power: By Jack De Ment and H. C. Dake.

Here is a book that should be in the hands of anyone who is in any way interested in uranium as it is full of vital information on this, the world's most talked-about element. Perhaps the mere listing of the contents will point out the great importance of the book far better than a description of it. The contents are: atomic power (pp. 1-22); the uranium minerals (pp. 23-42); prospecting for uranium minerals (pp. 43-48); physics of uranium (pp. 49-102); the chemistry of uranium (pp. 103-175); specific methods in uranometry (pp. 176-274); special methods in uranometry (pp. 275-296); bibliography (pp. 297-313); miscellaneous tables (pp. 317-331); the atomic bomb (pp. 332-338).

Dr. Dake, one of the authors, is Editor of *The Mineralogist,* one of the world's great magazines which should be an added inducement for collectors to get the book.

The book is 5½ x 8¾ in size, contains 343 pages with 14 illustrations, and sells at $4.00 a copy. Published by the Chemical Publishing Co., Inc., Brooklyn, N. Y. Copies can also be obtained from Dr H. C. Dake, Editor, *The Mineralogist,* 329 S. E. 32nd Ave., Portland 15, Oregon.

East Bay Mineral Society

Two meetings of the Society were held during April, 1946. On April 4th, Capt. B. J. Chromy was the speaker whose subject was "The atomic bomb and radio-active minerals". On April 16th, C. A. Morrison was the speaker whose subject was "Synthetic crystals".

The Society meets at the Auditorium, Lincoln School, Oakland, Calif.

American Gem Society
(Northern Ohio Guild)

A regular meeting of the Guild was held on April 16, 1946, at Western Reserve University, Cleveland, Ohio. Dr. Henry F. Donner, of the University, was the speaker whose subject was "The diamond".

GREAT BALL OF FIRE!
By DR. W. B. S. THOMAS

A very interesting ball is made by some sphere cutters of Franklin, N. J. Calcite, with traces of Willemite and Franklinite which can be cut easily. Care must be taken to select red fluorescent calcite without checks or fracture. When the ball is complete it can be spun in a small circle while under the activating light. The calcite on the side toward the lamp fluoresces beautifully and the darker, redder short-lived phosphorescence gives the illusion of a solid ball of red hot material.